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LETTER AND THE U S EPA REGION II COMMENTS ON THE TIER II SAMPLING AND ANALYSIS PLAN FOR SITE 4 REMEDIAL INVESTIGATION WILLIAMSBURG FISC VA
6/13/2012
U S EPA REGION III

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

June 13, 2012

Mr. Scott Park
NAVFAC MIDLANT, Building N-26, Room 3208
Attention: Code OPHE3, Mr. Scott Park
9742 Maryland Avenue
Norfolk, VA 23511-3095

Subject: Comments on the Tier II Sampling and Analysis Plan. Site 4 Remedial Investigation

Mr. Park:

Thank you for the opportunity to review the subject document. EPA would like to provide the following comments at this time.

EPA Tox Comment 1: Page 17. The response to Question 4 proposes sampling gw for VOCs, PAHs and inorganics (total and dissolved) during the RI. According to the report, this proposal for limited analyses is based on the findings of the 2009 SI conducted at Site 4. However, during the SI, gw samples were collected from *temporary* wells; data collected from such wells can not be duplicated. For this reason, I suggest conducting a full suite analysis of the permanent mws that will be installed for the RI.

EPA Tox Comment 2: Pages 24, 26, 31, and Figure 4. For soil and gw, if on-site metal concentrations pose an unacceptable risk, the report indicates that a comparison to 95 percent UTLs for bg will be performed. This type of statistical evaluation of on-site and bg conditions is acceptable and defensible. The report continues, however, to state that if 95 percent UTLs are exceeded, then a comparison to maximum bg concentrations will be conducted to eliminate any CoPCs that are present below maximum bg levels. This step completely negates the previous step, does not represent sound science, and should be eliminated from the DQO process.

EPA Tox Comment 3: Page 29. According to the last sentence of the second paragraph, based on spatial coverage of the current data set (that is, the SI data), no additional sampling is necessary to adequately assess potential risks to human health. However, other sections of this report indicate that additional sampling conducted during the RI will be combined with SI data in the Baseline Risk Assessment. The language on page 29 should be clarified in this regard.

EPA Tox Comment 4: Based on data from the SI, chromium was identified as a CoPC in soil (surface and subsurface) and gw. As a consequence, the SAP for Site 4 states that during the RI, two *surface* soil samples will be collected from the areas of highest total chromium contamination (per page 19) and analyzed for hexavalent chromium. This type of analysis should also be performed for subsurface soil. With regard to gw, no analysis for hexavalent chromium is proposed; therefore, irrespective of the soil

investigation findings, chromium in gw will have to be assumed to be present in the more toxic form (unless valence-specific analysis is conducted).

EPA RPM Comment 1: Please include a figure in the SI showing all SI exceedences of screening criteria and previous sampling locations.

EPA RPM Comment 2: Page 19. Didn't we later discuss the 100ppb with John M. and lower the number to 50 or so?

EPA RPM Comment 3: Pages 22 and 23. Was the area with the railroad ties and drum sampled.

EPA RPM Comment 4: Page 25. Human Health Risk Decision Logic. Why wasn't a recreational user scenario evaluated? Are there currently any engineering controls present at the site (e.g. fense)?

EPA RPM Comment 5: Page 39. Offsite reference pond. What pond will be used? Will data be compared against Eco Screening Levels as well?

EPA RPM Comment 6: Page 40. "risk posed frogs". Typo.

EPA RPM Comment 7: Page 44. Reference Ponds (2?). The Site 4 sediment data should be compared to Eco screening data as well as the reference pond samples. Reference pond samples should not show elevated concentrations of contaminants and data that do should not be utilized.

EPA RPM Comment 8: Comparison to Maximum Background should not be used to screen out COPCs. This should only be used as a supporting line of evidence as part of possible risk management decisions.

EPA BTAG Comment 1: Page 16: The second bullet indicates that Youth Pond will be investigated later in its own study. It is not clear why this is decision was made. Based on culverts alone, the Upstream Pond drains into Youth Pond which subsequently drains into the York River. This was also acknowledged in the draft SLERA (June 29, 2001) for Site 4. The text of this document needs to specifically address why these ponds will be addressed separately.

EPA BTAG Comment 2: Page 16: Number 1 indicates that one surface and subsurface sediment sample will be collected from Youth Pond. As the Navy has indicated that Youth Pond will be addressed in its own study, the Navy needs to specifically explain why one sediment sample in Youth Pond is proposed in this Site 4 (Upstream Pond) study. If the Navy continues to support the need for sampling Youth Pond, then a minimum of five samples need to be collected.

EPA BTAG Comment 3: Page 16: Number 2 states "…the test pit locations are on the opposite shore of the pond from the known extent of debris…." The text needs to clearly inform the reader about the information that was used to select only these two locations. Considering the amount of land extending from the southeast shoreline of the Upstream Pond to both D Street and the street on the southeast side of the pond, it is uncertain if two test pits are adequate. If the concern is that the buried debris extends across the Upstream Pond and into the upland on the

southeast side of the pond, then the number and location of the text pits are not adequate. If debris were placed on the southeast side of the pond from either street, the two test pit locations may not be adequate. Lacking further data, eight test pits may be needed to adequately cover the area in question.

EPA BTAG Comment 4: Page 17: Number 5 indicates that no additional surface water or sediment samples were needed for Site 4. The current sample locations in the Upstream Pond appear to be along the edge of the pond. It would be helpful to show SI and SLERA sample locations to document better sample coverage than is currently shown on Figure 5. In addition, the text needs to document that historical samples are still valid to use in the BERA. The uncertainty associated with using data that is 11 or more years old needs to be included in this report.

EPA BTAG Comment 5: Page 18: Section 2.1.2 mentions the Site 4 SI data set. Since this data set was collected prior to June 2001 (draft SLERA), this data set (e.g., final SLERA) needs to be included as an appendix to this report or the RI.

EPA BTAG Comment 6: Page 19: Section 2.1.3 in the last paragraph indicates that two, not five, surface soil samples will be collected for total and hexavalent chromium analysis and that groundwater would not be analyzed for hexavalent chromium as scoped in September 2011. The basis of this change should be provided.

EPA BTAG Comment 7: Page 22: Section 2.2.1 indicates a Screening Ecological Risk Assessment (SERA) was completed for soil, sediment and surface water in 2005. The BTAG has no record of a risk assessment document or involvement in the risk assessment process since its February 10, 2003 comment letter on the draft SLERA for Sites 4 and 9.

EPA BTAG Comment 8: Page 26: Section 2.3.2, under Ecological Risk Decision Logic in bullet 1and other bullets, notes that ecological risk to soil invertebrates and plants will be determined using mean soil concentrations. Because these ecological receptors groups have limited or no mobility, maximum soil concentrations need to be used to assess risk. Mean soil concentrations can be used to indicate a potential range of risk for these receptor groups, but is inappropriate to use by itself in assessing risk.

EPA BTAG Comment 9: Page 26: Section 2.3.2, under Ecological Risk Decision Logic in the first bullet (under soil analytical sampling), indicates that if the soil concentration "…is below the soil screening values, the chemical will not be considered a COPC, although the magnitude of the maximum hazard quotient (HQ) will also be considered when making this determination." The text needs to specifically detail how this "criteria" (magnitude of the maximum hazard quotient) will be worded.

EPA BTAG Comment 10: Page 26: Section 2.3.2, under sediment toxicity, indicates, in the last bullet, that a "…weight of evidence evaluation will be conducted to determine if the site sample is significantly impacted." This report, the RI, or a separate technical memorandum needs to

specifically document how this weight of evidence will be structured and how decisions will be made.

EPA BTAG Comment 11: Page 27: Section 2.3.2 indicates in the first bullet that a statistical (correlation) analyses will be conducted on impacted samples to see what is correlated with the reduced endpoint responses. A decision tree should be provided and should address if the statistical analyses are inconclusive.

EPA BTAG Comment 12: Page 27: Section 2.3.2, under fish and frog tissue sampling, associates mean site concentrations with bioaccumulative chemicals. The document should indicate which site concentrations will be used with non-bioaccumulative chemicals. In addition, both mean and maximum concentrations need to be run in food web models to fully characterize the potential range of risk.

EPA BTAG Comment 13: Page 27: Section 2.3.2, under fish and frog tissue sampling, states "…fish tissue concentration will be compared with literature-based tissue screening values, if available…." The text needs to describe what will happen when a screening value is not available.

EPA BTAG Comment 14: Page 27, Section 2.3.3 indicates that one additional sample in Youth Pond will be added to two other samples reported in 2001 to determine if contaminants from the Upstream Pond are entering Youth Pond. Because the Navy has specifically separated the study of the Upstream Pond (Site 4) from Youth Pond / York River, the Navy needs to specifically identify how these Youth Pond data will be used at Site 4. In addition, the Navy needs to specifically justify the use of data collected before 2001 with the use 2012 / 2013 data to make conclusions about what has entered Youth Pond from the Upstream Pond.

EPA BTAG Comment 15: Page 28, Section 2.3.3: Groundwater needs to be analyzed for all potential contaminants. The discharge areas (potentially Youth Pond and the York River) for groundwater need to be identified and sampled / analyzed all potential contaminants.

EPA BTAG Comment 16: Page 30, Section 2.3.3: The third bullet refers to using one organism (Hyalella azteca) for sediment toxicity tests. Because of the errors that can happen in toxicity testing that can result in data interpretation difficulties, it would be better to utilize at least two species. Differences in sensitivity between test organisms is another reason for testing another species. The other one being Chironomus tentans (dilitus).

EPA BTAG Comment 17: Page 30, Section 2.3.4: Number 2 indicates for subsurface soil that literature based ecological screening values for plants and invertebrates (if less than 2 feet) will be used. Documentation will need to be provided indicating that only the top 2 feet is used by invertebrates.

EPA BTAG Comment 18: Page 30, Section 2.3.4: Number 6 must indicate that both mean and maximum tissue concentrations will be run in food web models to fully characterize the potential range of risk.

EPA BTAG Comment 19: Page 31, Section 2.3.4: The first paragraph on this page refers to using base background concentrations. Background data for the same soil type will need to be used.

EPA BTAG Comment 20: Page 44, Section 3.2.12: Regarding earthworm tissue sampling, it is not clear from this paragraph if the areas from where earthworm tissue will be collected will also have a soil sample (surface and/or subsurface). Also, it is not clear why earthworms from only the "…three areas adjacent to the streams west of Upstream Pond" are proposed for collection / analysis. There appear to be other areas within the Site 4 boundary as well as outside this boundary (southeast of the pond / test pit areas) that would need earthworm tissue sampling. If earthworms are not found (which may be due to temperature and moisture, and/or chemicals) within the first 12 inches of soil bgs, then the next 12 inches bgs should be examined and considered for sampling. If earthworms are not found, the Navy will need to adequately document why this is not related to contaminants from the site.

EPA BTAG Comment 21: Page 45, Section 3.2.12: Under benthic invertebrate sampling in shallow water a D-frame dip net will be used and the level of effort will be determined in the field and standardized among locations. The level of effort in using this sampling device will also need to be within established protocols.

EPA BTAG Comment 22: Page 45, Section 3.2.12: Under benthic invertebrate sampling, the text indicates that if more than 250 organisms are collected, a 100 organism subsample (randomly selected) will be identified and the results extrapolated to the entire sample. The reference for this technique needs to be included in the text. Standard operating procedures for the benthic assessment must be provided. While the document indicates that the benthic survey will be qualitative, the description of how the data will be used indicates that a more formal approach to the benthic work is warranted. At a minimum, in addition to providing the aforementioned methodology, the individual(s) classifying the invertebrates should have NABS certification and the appropriate documentation should be provided.

EPA ESC Comment 1: Under the proposed number of samples to be collected from Site 4, the reviewer fails to understand how the suggested number of samples, including previously sampled areas, can possibly characterize the nature and extent of contamination over the 2,300 acre area.

EPA ESC Comment 2: This Remedial Investigation (RI)/Sampling and Analysis Plan (SAP) does not contain a Decision Threshold. If the analytes are found above action levels, what remediation procedure will be implemented? Section 2.2.1, Site Background and History, mentions the results from the soil, groundwater, sediment, and surface water sampling activities indicated potential risk to human health and ecological receptors and that a RI was recommended, but fails to state if any action had been taken.

EPA ESC Comment 3: The language, "these samples will be field determined," appears throughout the SAP. The third party Utility Clearance Subcontractor, mentioned in section 3.2.1 under utility clearance should be employed to map the entire site which would enable

predetermined sample locations to be pinpointed without fear of disrupting buried utility lines. All sampling points should be predetermined and documented using a GPS device listing both the longitude and latitude for each sample location. It is because of the location specific constraints, mentioned in Section 2.5 Sampling Design and Rationale that it is of the utmost importance to have sample locations well defined and predetermined. A grid sampling collection plan is highly recommended. Because of the size of the area, dividing it into quadrants would be beneficial.

EPA ESC Comment 4: Groundwater flow is estimated to be north-northeast towards Upstream Pond. The reviewer fails to understand how the installation of just six monitoring wells over 2,300 acres will be sufficient to characterize the extent of groundwater contamination and determine the direction of flow. This plan does not take into account the possibility of multiple unconnected groundwater networks.

EPA ESC Comment 5: In order to properly characterize the site and support the completion of a Human Health Risk Assessment (HHRA) and a Baseline Ecological Risk Assessment (BERA), a more complete and comprehensive list of analyses should be performed on all matrices sampled. The reviewer recommends each sample be analyzed for VOCs, PAHs, PCBs, Total Metals, Aroclors, and Hexavalent Chromium.

EPA ESC Comment 6: Laboratory generated data should be validated by third party validators, not by CH2MHILL validators as mentioned in Section 2.3.9.

EPA ESC Comment 7: Tentatively Identified Compounds (TICs) should be reported by the laboratory to provide a list of possible contaminates not screened for.

EPA ESC Comment 8: The water bodies located at Site 4 should be sampled using a sample grid pattern for both water and sediment samples as well. If a water body contains a submerged canister or drum filled with a chemical contaminant, and it has a small opening due to erosion, the concentration of the contaminate will be higher closer to the point of origin and very diluted downstream.

If you have any questions, please contact me at 215-814-3378.

Sincerely,

John Burchette
Remedial Project Manager

cc: Wade Smith, VDEQ